

REMARKS

In view of the above amendments and following remarks, reconsideration and further examination are requested.

Replacement formal drawings are provided for Figures 1 and 3, which identify these figures as --Fig. 1(a)--, --Fig. 1(b)--, --Fig. 3(a)-- and --Fig. 3(b)--.

The specification and abstract have been reviewed and revised to make editorial changes thereto and generally improve the form thereof, and a substitute specification and abstract are provided. No new matter has been added by the substitute specification and abstract.

Claims 1-4 have been canceled, and claims 5-25 have been added.

Claims 1 and 4 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Arimoto in view of Cox; claims 1 and 4 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Arimoto in view of Tasaki; and claims 2 and 3 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Arimoto in view of Cox and further in view of Iwamoto et al. These rejections are respectfully traversed in part, and the references relied upon are not believed to be applicable with regard to the newly added claims for the following reasons.

An object of the instant invention is to provide an article separating and supplying method and apparatus by which a predetermined number of articles can be separated and differently positioned rapidly. Another object of the invention is to provide an article separating and supplying method and apparatus by which a change of articles and an adjustment for this change are easily performed, so as to be able to surely separate and differently position the articles even in case of a size change of the articles.

In order to fulfill the objects, the article separating and supplying apparatus comprises, with reference to the drawings for example, a transfer conveyor 1, a separating conveyor 10, a first stopper 17, and a second stopper 18. The second stopper 18 includes an endless belt 22 and engaging members 23 and 24. In operation, the transfer conveyor 1 transfers arrayed articles, the separating conveyor 10 receives these articles from the transfer conveyor, the first stopper 17 stops transferring of the articles from the transfer conveyor to the separating conveyor after a predetermined number of the articles are positioned on a first portion of the separating conveyor, and one of the engaging members 23 or 24 is positioned at a stop location so as to stop a front one of the articles of the predetermined number on the separating conveyor and thereby prevent

conveyance of the articles by the separating conveyor.

By having the second stopper include an engaging member on an endless belt, a space for storing or temporarily stopping a predetermined number of articles on the separating conveyor can be easily changed simply by moving the endless belt. Accordingly, a change in size of articles to be separated and supplied can be easily accommodated. After the predetermined number of articles are stored or stopped on the separating conveyor by one of the engaging members, moving the endless belt results in these articles being transferred to a separating position and another predetermined number of articles, to be separated next, being stored or stopped on the separating conveyor upon one of the engaging members being positioned at a stop location. Thus, discharging a predetermined number of articles from the separating conveyor and storing or stopping another predetermined number of articles on the separating conveyor, for subsequent discharge therefrom, can be performed substantially simultaneously.

Claim 5 is believed to be representative of the inventive apparatus, and claim 16 is believed to be representative of the inventive method. The method and apparatus as claimed are not taught or suggested by the relied-upon references either taken alone or in combination. In this regard, each of claims 5 and 16 requires a stopper that includes **an endless belt having a first stopper member projecting therefrom**, which stopper is not taught or suggested by any of the references taken alone or in combination.

Arimoto et al. discloses a weighing system for aligning weighed article batches, such as potato chips. The articles to be weighed are transferred to weighing conveyors 14 through plural supply lines 6a, and the articles after being weighed are stored on a pooling device 32. The articles from the pooling device 32 are combined so as to obtain a total weight which satisfies a predetermined condition, and supplied to a discharge conveyor 19B via discharge device 3. Paths of the weighing conveyors 14, the pooling device 32 and the discharge device 3 are provided with gates 18, 27, 31, and 38 for stopping and allowing transferring of the articles in the paths. Thus, though Arimoto et al. does disclose stoppers, none of these stoppers is of the construction of the “second stopper” as required by each of independent claims 5 and 16. That is, none of the stoppers of Arimoto et al. includes **an endless belt having a first stopper member projecting therefrom**.

Cox et al. discloses a conveyor constructed to change a delivery direction for enabling conveyed articles to be channelized. Endless belts of the conveyor consist of elastic strands 31 and have such a construction that the endless belts are moved right and left by the displacement of

roller 33, which is moved by displacement of the carriage 34 in response to displacement of arm member 70, which is moved by two cylinders 73, 74. Cox et al. also describes a combination of this conveyor and a photo eye and counter for counting a number of articles transferred by the conveyor. However, like Arimoto et al., Cox et al. does not disclose or suggest the specific construction of the second stopper as required by claims 5 and 16.

Tasaki (10-264901) discloses a caser for packing articles into a box in an aligned condition. Like Arimoto et al. and Cox et al., Tasaki does not disclose or suggest the specific construction of the second stopper as required by claims 5 and 16.

In rejecting claim 2, the Examiner took the position that Iwamoto et al. discloses a stopper that includes an endless belt with a stopper member projecting therefrom. While it is true that Iwamoto et al. discloses members 18 projecting from endless belt 19, similar to the claimed second stopper, for the following reasons it is respectfully submitted that a prima facie case of obviousness cannot be established for claims 5 and 16 by relying on Iwamoto et al. and Arimoto et al., with/without any of the other references.

First, projection 18 is for securing pallet 36 on the belt 19 so as to transfer it to a work station in an assembly line. Accordingly, because of the different systems of Arimoto et al. and Iwamoto et al. (one pertaining to weighing food items and the other pertaining to an assembly line), it is respectfully submitted that one having ordinary skill in the art would not have looked to Iwamoto et al. for guidance as to how the arrangement of Arimoto et al. could be modified.

Second, assuming *arguendo* that one having ordinary skill in the art would have found it obvious to combine the teachings of Arimoto et al. and Iwamoto et al., the invention as recited in claims 5 and 16 would still not be met. In this regard, claims 5 and 16 require more than an endless belt with a member projecting therefrom. Specifically, these claims require that the endless belt with the projecting member is to function as a stopper.

That is, claim 5 recites

a second stopper including an endless belt and a first stopper member projecting from said endless belt, such that upon movement and then stoppage of said endless belt said first stopper member becomes positioned at a stop location for stopping a front one of the articles of the predetermined number on said separating conveyor and thereby preventing conveyance of the articles of the predetermined number by said separating conveyor.

Similarly, claim 16 recites

using a second stopper, including an endless belt and a first stopper member projecting from said endless belt, to stop a front one of said articles of the predetermined number on said separating conveyor, and thereby prevent conveyance of said articles of the predetermined number by said separating conveyor, by positioning said first stopper at a stop location.

Thus, the second stopper is designed to operate in conjunction with the separating conveyor so as to prevent the second conveyor from conveying articles when the articles are stopped by the second stopper.

A combination of endless belt 19 and projection 18 of Iwamoto et al. is not disclosed to be a stopper, nor is it disclosed to perform the function of a stopper. Accordingly, were the teachings of this reference combined with any of Arimoto et al., Cox et al. or Tasaki, the resulting combination would not include the second stopper as required by claims 5 and 16. Though the resulting combination might include a conveyor having projections thereon, this conveyor would simply function as a conveyor that is not to perform any stopping function as recited in claims 5 and 16. This is especially true in light of the fact that the gates of Arimoto et al. function as stop members.

Furthermore, assuming *arguendo* that endless belt 19 and projection 18 of Iwamoto et al. constitute a stopper, it is not clear as to how this structure would be incorporated into the device of Arimoto et al. so as to arrive at the invention as recited in claims 5 and 16. Indeed, in order to possibly support a *prima facie* case of obviousness, at the very least it would have to be shown that one would have found it obvious to substitute an endless belt with a projection for one of the gates of Arimoto et al.; however, from the teachings of the references there is no reason to make such a substitution.

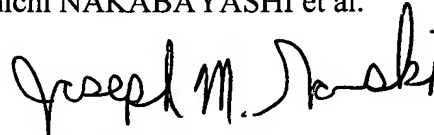
For the above reasons, a *prima facie* case of obviousness cannot be established, whereby claims 5-25 are allowable.

In view of the above amendments and remarks, it is respectfully submitted that the present application is in condition for allowance and an early Notice of Allowance is earnestly solicited.

If after reviewing this Amendment, the Examiner believes that any issues remain which must be resolved before the application can be passed to issue, the Examiner is invited to contact the Applicants' undersigned representative by telephone to resolve such issues.

Respectfully submitted,

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December 16, 2005